



Regional Innovation Scoreboard

2023

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EUROPEAN INNOVATION SCOREBOARD

Il *Regional Innovation Scoreboard* (RIS) è la declinazione regionale dello European Innovation Scoreboard (EIS) e valuta le performance dei sistemi regionali di innovazione.

Le regioni sono importanti motori di sviluppo economico e misurare la performance innovativa a livello regionale è diventato sempre più importante. Tuttavia, i tentativi di monitorare i Sistemi Regionali di Innovazione sono ostacolati dalla mancanza di studi e strumenti per misurare l'innovazione regionale.

Il RIS colma questa lacuna fornendo evidenze statistiche sulle performance innovative delle regioni e mettendo a disposizione uno strumento online che consente agli utenti di visualizzare le differenze tra le regioni in termini sia di performance innovativa che di singoli indicatori.

La performance innovativa regionale è misurata utilizzando un indicatore composito - l'**Indice di Innovazione Regionale** (RII). Esso si basa sullo stesso quadro metodologico dell'EIS, ma sintetizza un numero inferiore di indicatori a causa della minore disponibilità di dati a livello regionale (21 indicatori rispetto ai 32 dell'EIS).

L'anno utilizzato nel titolo del rapporto RIS si riferisce all'anno di pubblicazione dell'edizione e non a quello dei singoli indicatori utilizzati. Per il RIS 2023, i dati più recenti si riferiscono al 2022 per 2 indicatori, al 2021 per 8 indicatori e al 2020 per 11 indicatori. L'indice RII per il 2023 deve essere interpretato come riferito a dati più vecchi di circa due anni rispetto all'anno di riferimento 2023.

Il rapporto completo dell'undicesima edizione del RIS si può scaricare al seguente [link](#).

PRINCIPALI EVIDENZE

Il *Regional Innovation Scoreboard* offre una valutazione comparativa delle performance nella ricerca e innovazione di **239 regioni** in 22 Stati membri dell'Unione Europea, ma anche di Norvegia, Serbia, Svizzera e Regno Unito. Inoltre, Cipro, Estonia, Lettonia, Lussemburgo e Malta sono inclusi a livello di Paese.

Il documento del 2023 evidenzia tre punti fondamentali:



Gruppi di innovazione

Le regioni europee sono classificate in quattro gruppi di performance innovativa in base al valore dell'Indice di Innovazione Regionale (RII) rispetto a quello dell'UE.

Si hanno così: **Leader nell'innovazione** (36 regioni - *performance relativa superiore al 125% della media UE*), **Innovatori forti** (70 regioni - *tra il 100% e il 125%*), **Innovatori moderati** (69 regioni - *tra il 70% e il 100%*) e **Innovatori emergenti** (64 regioni - *inferiore al 70%*).

Ogni gruppo è ulteriormente diviso in tre sottogruppi; al sottogruppo con i migliori risultati viene assegnato un "+", mentre a quello con i peggiori risultati un "-".



Regioni Leader nell'innovazione

La regione più innovativa d'Europa è **Hovedstaden** in Danimarca, seguita da **Helsinki-Uusimaa** in Finlandia, **Ober-bayern** in Germania, **Stoccolma** in Svezia e **Berlino** in Germania.

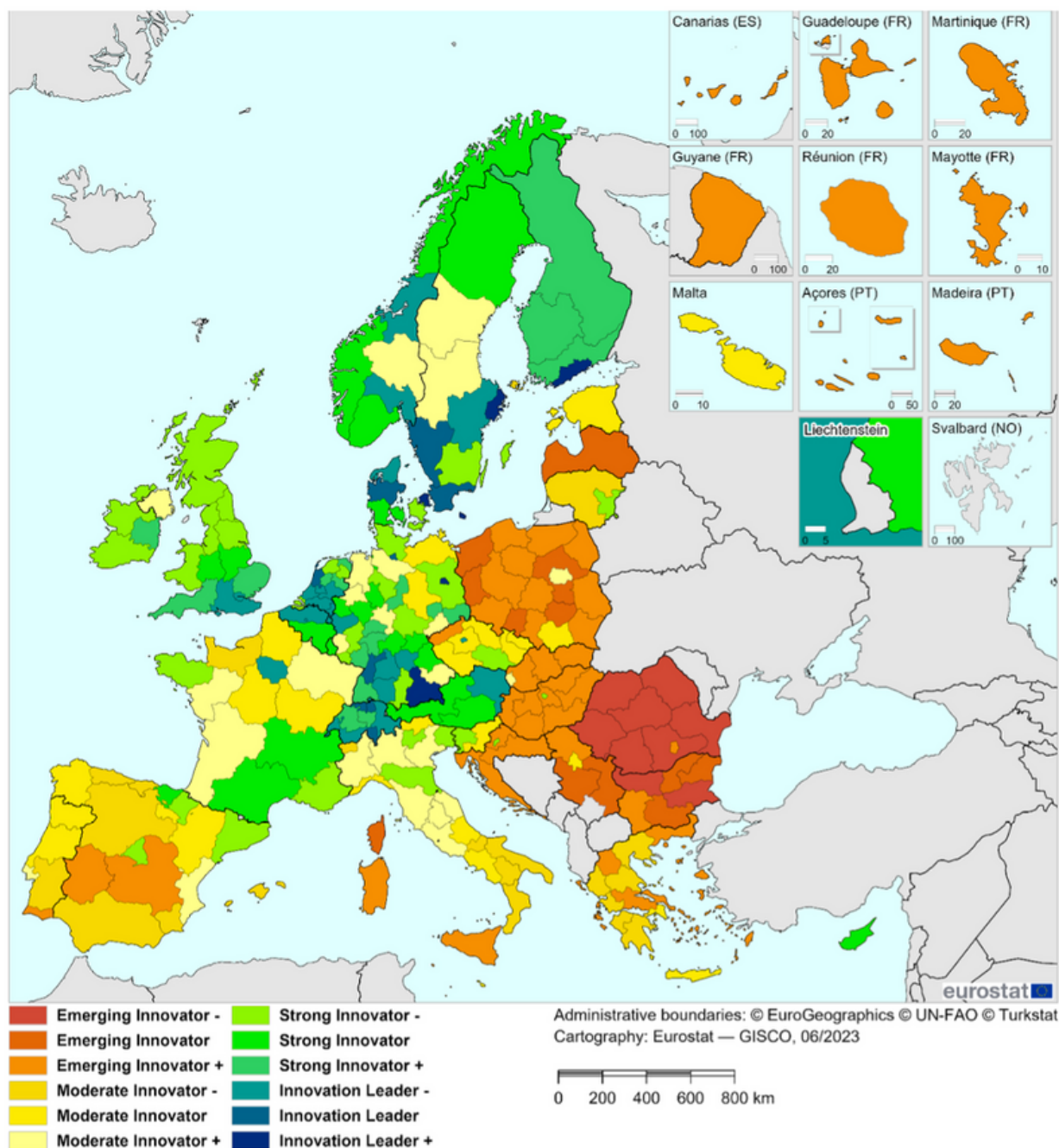


Evoluzione tra il 2016 e il 2023

Tra il 2016 e il 2023 le **performance** sono **aumentate per 211 regioni** e diminuite per 28 regioni.

L'indicatore è aumentato nel tempo più di quanto abbia fatto per la media UE per 126 regioni, comprese tutte le regioni di Belgio, Repubblica Ceca, Grecia e Lituania, mentre è aumentato meno della media europea per le restanti 113 regioni.

RIS 2023 - REGIONI EUROPEE

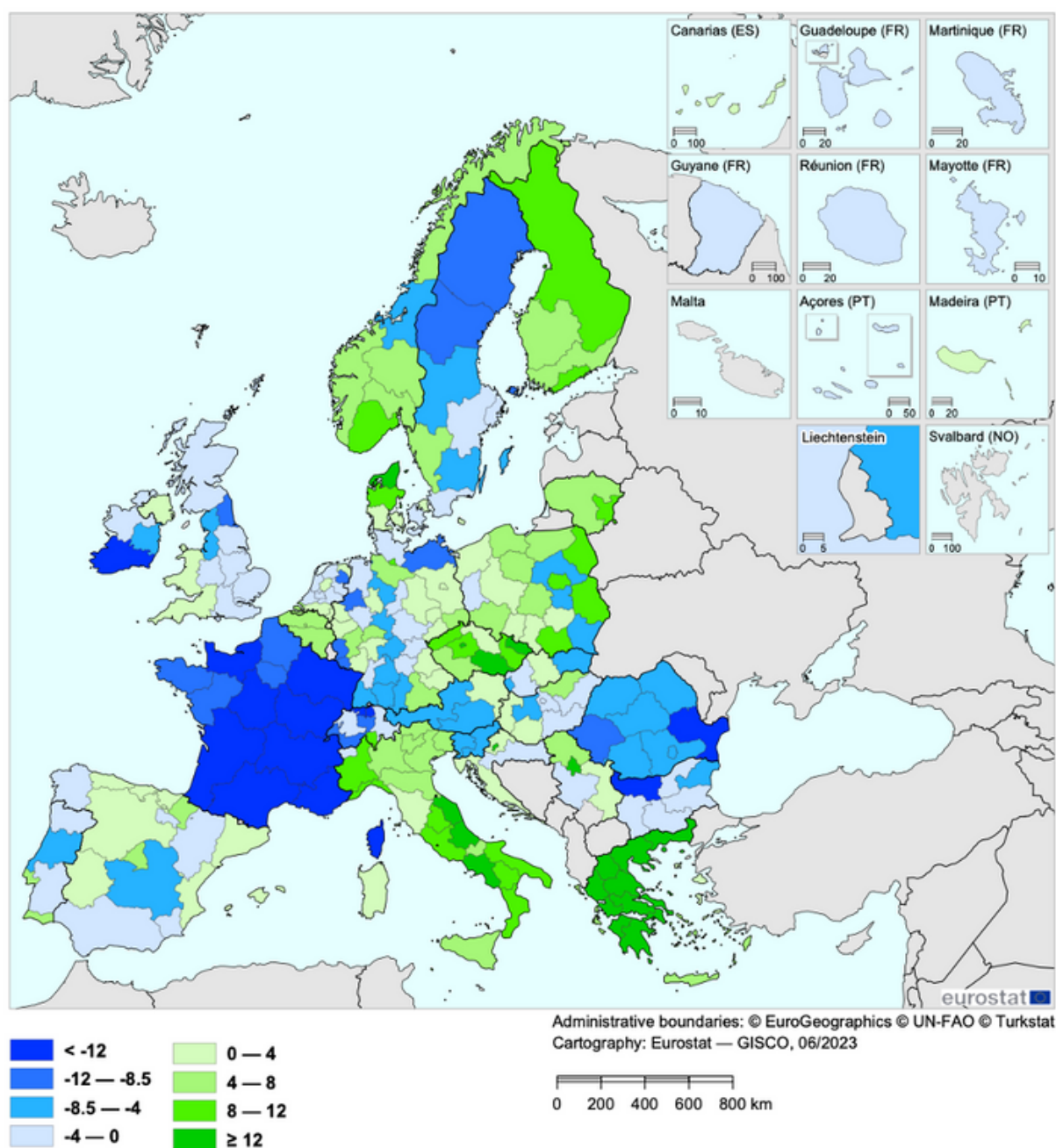


Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the EU.

Source: European Commission - RIS 2023.

For Cyprus, Estonia, Latvia, Luxembourg and Malta, performance group membership is identical to that in the EIS 2023 report. For these countries, the corresponding colourcodes for the middle sub-group of regions have been used.

EVOLUZIONE INDICE 2016-2023



Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the EU.

Source: European Commission - RIS 2023.

RIS 2023 - REGIONI ITALIANE

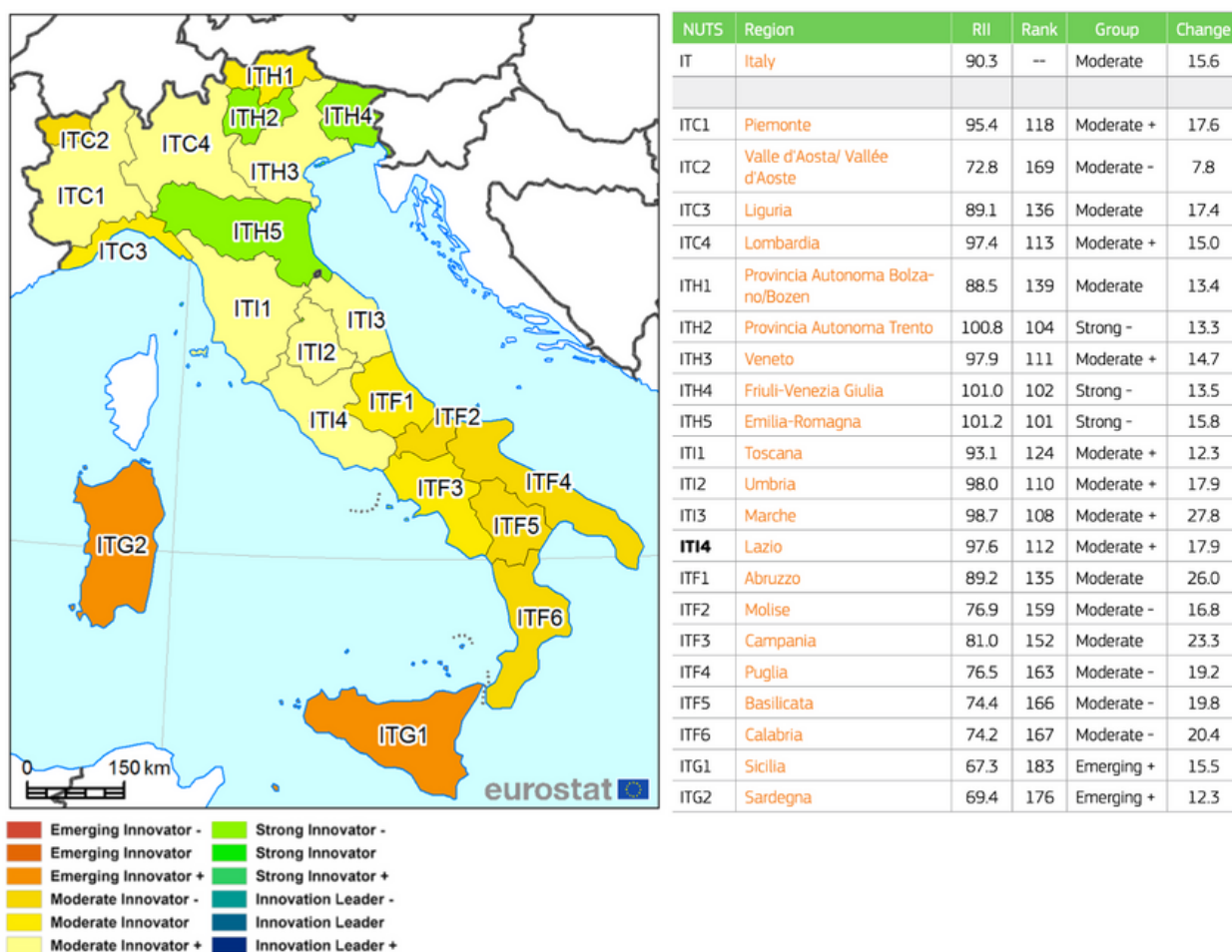
Secondo il RIS 2023, l'Italia è un **Innovatore moderato**.

L'analisi della performance regionale restituisce il seguente quadro:

- 3 regioni sono Innovatori forti;
- 16 regioni sono Innovatori moderati (tra cui la **Liguria**);
- 2 regioni sono Innovatori emergenti.

La performance dell'Indice di Innovazione Regionale (RII), calcolato sulla base del dato UE 2016, è **aumentata per tutte le regioni nel periodo 2016-2023**, e più fortemente per le Marche e l'Abruzzo. Inoltre, per 20 regioni le performance sono aumentate a un tasso superiore a quello dell'UE (8,5), con la sola eccezione della Valle d'Aosta.

L'Emilia-Romagna si configura come la regione più innovativa d'Italia.

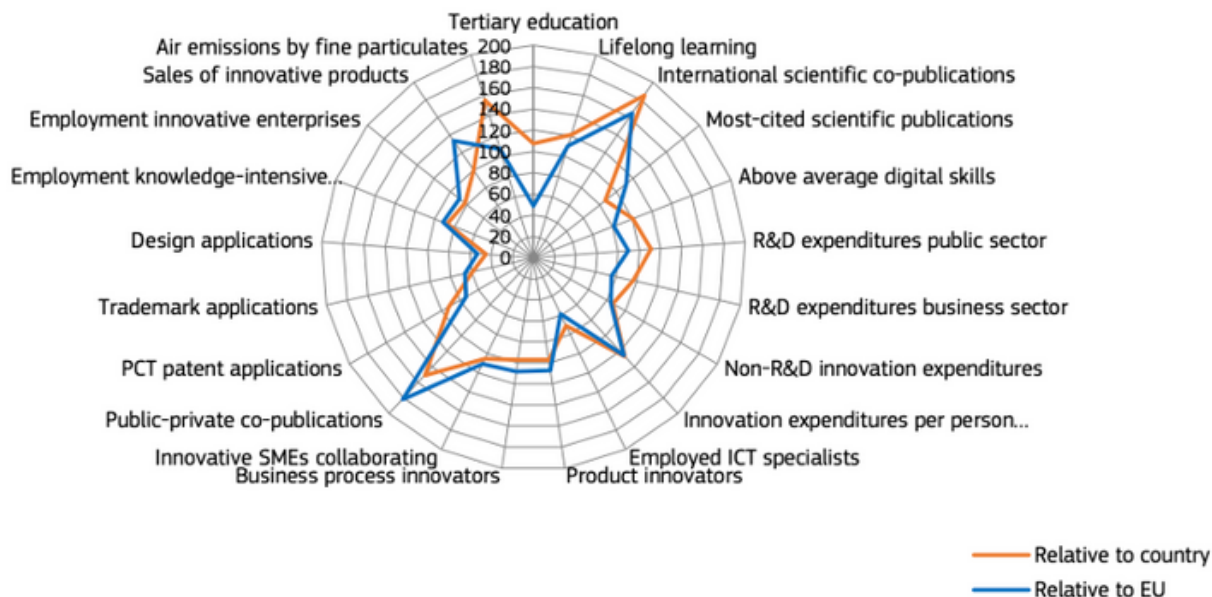


POSIZIONAMENTO LIGURIA 2023

Nel panorama europeo, i dati del *Regional Innovation Scoreboard 2023* collocano la **Liguria tra gli Innovatori moderati**.

La regione mostra un **miglioramento complessivo della performance innovativa di 17,4 punti percentuali** rispetto al valore del 2016.

Il grafico a radar mostra i punti di forza e di debolezza relativi rispetto all'Italia (linea arancione) e all'Unione Europea (linea blu). Un'analisi dettagliata di tali indicatori è fornita nella pagina successiva.



PERFORMANCE LIGURIA 2023

Analizzando i valori dei singoli indicatori è possibile comprendere più approfonditamente il posizionamento della Liguria rispetto alla media italiana ed europea.

Performance

Indicatori

Performance molto positiva

(superiore o sostanzialmente in linea con la media sia italiana che europea)

- apprendimento permanente
- pubblicazioni scientifiche internazionali
- spesa in innovazione per addetto
- innovatori di prodotto
- innovatori di processo
- PMI innovative con attività di collaborazione
- co-pubblicazioni pubblico-private
- vendite di prodotti innovativi
- emissioni di particolato in atmosfera

Performance positiva

(superiore o in linea con uno solo dei due contesti di riferimento)

- educazione terziaria
- pubblicazioni scientifiche maggiormente citate
- competenze digitali sopra la media
- spesa per R&S nel settore pubblico
- spesa per R&S nelle imprese

Performance critica

(inferiore alla media dei due contesti di riferimento)

- spesa per innovazione non R&S
- specialisti occupati nel settore ICT
- domande di registrazione di brevetti, marchi e modelli
- occupati in attività ad alta intensità di conoscenza
- occupati nelle imprese innovative

INDICATORI LIGURIA 2023

La tabella mostra i valori e i punteggi normalizzati assunti dagli indicatori e la performance relativa dei punteggi normalizzati rispetto all'Italia e all'UE.

Nelle ultime righe della tabella, inoltre, sono riportati il valore normalizzato del RII nel 2023 e la sua performance rispetto a Italia e UE, la performance rispetto alla media UE del 2016, il valore normalizzato e la performance relativa del RII nel 2016 e l'evoluzione dell'indice tra il 2023 e il 2016.

	Data	Normalised score	Relative to	
			IT	EU
Tertiary education	29.1	0.257	107	49
Lifelong learning	11.8	0.409	121	110
International scientific co-publications	2090	0.505	185	165
Most-cited scientific publications	1078.0	0.610	86	112
Above average digital skills	22.6	0.382	101	81
R&D expenditures public sector	0.65	0.510	111	90
R&D expenditures business sector	0.86	0.509	96	75
Non-R&D innovation expenditures	±	0.341	86	84
Innovation expenditures per person employed	±	0.754	126	125
Employed ICT specialists	2.9	0.309	71	59
Product innovators	±	0.599	97	107
Business process innovators	±	0.699	97	108
Innovative SMEs collaborating	±	0.540	105	111
Public-private co-publications	455.9	0.711	151	181
PCT patent applications	1.74	0.451	92	73
Trademark applications	4.89	0.330	59	66
Design applications	1.12	0.308	45	53
Employment knowledge-intensive activities	15.2	0.521	87	92
Employment innovative enterprises	±	0.513	82	89
Sales of innovative products	±	0.641	100	133
Air emissions by fine particulates	10.4	0.642	155	107
Average normalised score	--	0.502	--	--
Country EIS-RIS correction factor	--	0.972	--	--
Regional Innovation Index (RII) 2023	--	0.488	--	--
Performance 2023 relative to EU in 2023	--	--	98.6	89.1
Performance 2023 relative to EU in 2016	--	--	--	96.7
Regional Innovation Index (RII) 2016	--	0.400	--	--
Performance 2016 relative to EU in 2016	--	--	96.2	79.3
Performance change over time	--	--	2.4	17.4

± Scores are not shown as these would allow recalculating confidential regional CIS data.

CONCLUSIONI

L'edizione 2023 del *Regional Innovation Scoreboard* offre un quadro d'insieme sull'innovazione nelle regioni europee.

Rispetto al 2016, l'Indice di Innovazione Regionale (RII) ha registrato un miglioramento in 211 regioni (su 239).

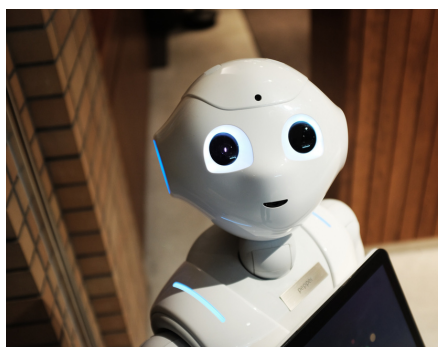


Le regioni europee sono state classificate in: Leader dell'innovazione (36 regioni), Innovatori forti (70 regioni), Innovatori moderati (69 regioni) e Innovatori emergenti (64 regioni).

L'Italia e la Liguria sono Innovatori moderati.

La performance del RII, calcolato sulla base del dato UE 2016, è **umentata per tutte le regioni italiane** nel periodo 2016-2023. L'Emilia-Romagna è la regione più innovativa d'Italia.

In Liguria, il miglioramento dell'indice in base UE 2016 è pari a +17,4 punti percentuali.



La Liguria mostra una performance molto positiva, ovvero superiore o in linea alla media sia italiana che europea, **per 9 dei 21 indicatori** esaminati.

Inoltre, per 5 indicatori mostra una performance superiore o in linea a uno solo dei due contesti di riferimento.

ALLEGATO INDICATORI RIS

Percentage population aged 25-34 having completed tertiary education	
Numerator	Number of persons in age class with some form of post-secondary education
Denominator	The reference population is all age classes between 25 and 34 years inclusive
Rationale	This is a general indicator of the supply of advanced skills. It is not limited to science and technical fields, because the adoption of innovations in many areas, including the service sectors, depends on a wide range of skills. The indicator focuses on a narrow share of the population aged 25 to 34 and will relatively quickly reflect changes in educational policies leading to more tertiary graduates
Included in EIS	No, proxy for EIS indicator measuring share of population aged 25-34 having completed tertiary education
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2014 - 2021

Percentage population aged 25-64 participating in lifelong learning	
Numerator	Number of persons in private households aged between 25 and 64 years who have participated in the four weeks preceding the interview, in any education or training, whether or not relevant to the respondent's current or possible future job
Denominator	Total population aged between 25 and 64 years
Rationale	Lifelong learning encompasses all purposeful learning activity, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural or sporting activities
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2014 - 2021

International scientific co-publications per million population	
Numerator	Number of scientific publications with at least one co-author based abroad
Denominator	Total population
Rationale	International scientific co-publications are a proxy for the quality of scientific research as collaboration increases scientific productivity
Included in EIS	Yes
Data source	Numerator: Scopus. Data calculated by Science Metrix as part of a contract to the EC Denominator: Eurostat
Data availability	NUTS 2: 2015 - 2022

Scientific publications among the top-10% most cited publications worldwide	
Numerator	Number of scientific publications among the top-10% most cited publications worldwide
Denominator	Total number of scientific publications
Rationale	The indicator is a measure for the efficiency of the research system as highly cited publications are assumed to be of higher quality. There could be a bias towards small or English-speaking countries given the coverage of Scopus' publication data
Included in EIS	Yes
Data source	Scopus. Data calculated by Science Metrix as part of a contract to the EC
Data availability	NUTS 2: 2013 - 2020

Individuals who have above basic overall digital skills	
Numerator	Number of individuals with above basic overall digital skills
Denominator	Total number of individuals aged 16 to 74
Rationale	Above basic overall digital skills represents the highest level of the overall digital skills indicator, which is a composite indicator based on selected activities performed by individuals aged 16-74 on the internet in four specific areas (information, communication, problem solving, content creation) during the previous 3 months
Included in EIS	Yes
Data source	Own estimates combining EIS country level with regional data (Eurostat) on Households with broadband access
Data availability	NUTS 2: 2017 – 2021

R&D expenditures in the public sector as percentage of GDP	
Numerator	All R&D expenditures in the government sector (GOVERD) and the higher education sector (HERD)
Denominator	Regional Gross Domestic Product
Rationale	R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. Trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of a region. R&D spending is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2013 - 2020

R&D expenditures in the business sector as percentage of GDP	
Numerator	All R&D expenditures in the business sector (BERD)
Denominator	Regional Gross Domestic Product
Rationale	The indicator captures the formal creation of new knowledge within firms. It is particularly important in the science-based sector (pharmaceuticals, chemicals and some areas of electronics), where most new knowledge is created in or near R&D laboratories
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2013 - 2020

Non-R&D innovation expenditures in SMEs as percentage of turnover	
Numerator	Sum of total innovation expenditure for SMEs, excluding intramural and extramural R&D expenditures
Denominator	Total turnover for SMEs
Rationale	This indicator measures non-R&D innovation expenditure as percentage of total turnover. Several of the components of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas
Included in EIS	No, proxy for EIS indicator including all enterprises
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020

Innovation expenditures per person employed in innovative SMEs	
Numerator	Sum of total innovation expenditure by enterprises in all size classes in Purchasing Power Standards (PPS)
Denominator	Total employment in innovative enterprises SMEs
Rationale	The indicator measures the monetary input directly related to innovation activities.
Included in EIS	No, proxy for EIS indicator including all enterprises
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020

ICT specialists (as a percentage of total employment)	
Numerator	Number of employed ICT specialists
Denominator	Total employment
Rationale	ICT skills are particularly important for innovation in an increasingly digital economy. The share of enterprises providing training in that respect is a proxy for the overall skills development of employees.
Included in EIS	Yes
Data source	Own estimates combining EIS country level with regional data (Eurostat) on Employment in information and communication (NACE J)
Data availability	NUTS 1 and 2 for different countries for 2014 - 2021

SMEs introducing product innovations as percentage of SMEs	
Numerator	Number of Small and medium-sized enterprises (SMEs) who introduced at least one product innovation. A product innovation is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components, or sub-systems
Denominator	Total number of SMEs
Rationale	Product innovation is a key ingredient to innovation as they can create new markets and improve competitiveness. Higher shares of product innovators reflect a higher level of innovation activities
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020

SMEs introducing business process innovations as percentage of SMEs	
Numerator	Number of Small and medium-sized enterprises (SMEs) who introduced at least one business process innovation either new to the enterprise or new to their market
Denominator	Total number of SMEs
Rationale	Many firms innovate not by improving new products but by improving their business processes. Business process innovations include process, marketing and organisational innovations.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020

Innovative SMEs collaborating with others as percentage of SMEs	
Numerator	Number of SMEs with innovation co-operation activities. Firms with co-operation activities are those that have had any co-operation agreements on innovation activities with other enterprises or institutions
Denominator	Total number of SMEs
Rationale	This indicator measures the degree to which SMEs are involved in innovation co-operation. Complex innovations often depend on companies' ability to draw on diverse sources of information and knowledge, or to collaborate on the development of an innovation. The indicator measures the flow of knowledge between public research institutions and firms, and between firms and other firms. The indicator is limited to SMEs, because almost all large firms are involved in innovation co-operation
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020
Public-private co-publications per million population	
Numerator	Number of public-private co-authored research publications. The definition of the "private sector" excludes the private medical and health sector. Publications are assigned to the country/countries in which the business companies or other private sector organisations are located
Denominator	Total population
Rationale	This indicator captures public-private research linkages and active collaboration activities between business sector researchers and public sector researchers resulting in academic publications
Included in EIS	Yes
Data source	Numerator: Scopus. Data calculated by Science Metrix as part of a contract to the EC Denominator: Eurostat
Data availability	NUTS 2: 2015 – 2022
PCT patent applications per billion regional GDP	
Numerator	Number of patents applied for at the European Patent Office (EPO), by year of filing. The regional distribution of the patent applications is assigned according to the address of the inventor
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	The capacity of firms to develop new products determines their competitive advantage. One indicator of the rate of new product innovation is the number of patent applications
Included in EIS	Yes
Data source	Numerator: OECD, REGPAT. Denominator: Eurostat
Data availability	NUTS 2: two-year averages for 2014 - 2021

Trademark applications per billion regional GDP	
Numerator	Number of trademark applications applied for at EUIPO
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	Trademarks are an important innovation indicator, especially for the service sector. The Community trademark gives its proprietor a uniform right applicable in all Member States of the European Union through a single procedure which simplifies trademark policies at European level. It fulfils the three essential functions of a trademark: it identifies the origin of goods and services, guarantees consistent quality through evidence of the company's commitment vis-à-vis the consumer, and is a form of communication, a basis for publicity and advertising
Included in EIS	Yes
Data source	Numerator: European Union Intellectual Property Office (EUIPO). Data provided by Science Metrix as part of a contract to DG Research and Innovation Denominator: Eurostat
Data availability	NUTS 2: two-year averages for 2015 – 2022

Design applications per billion regional GDP	
Numerator	Number of designs applied for at EUIPO
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	A design is the outward appearance of a product or part of it resulting from the lines, contours, colours, shape, texture, materials and/or its ornamentation. A product can be any industrial or handicraft item including packaging, graphic symbols and typographic typefaces but excluding computer programs. It also includes products that are composed of multiple components, which may be disassembled and reassembled. Community design protection is directly enforceable in each Member State, and it provides both the option of an unregistered and a registered Community design right for one area encompassing all Member States
Included in EIS	No, proxy for EIS indicator covering individual design applications
Data source	Numerator: European Union Intellectual Property Office (EUIPO). Data provided by Science Metrix as part of a contract to DG Research and Innovation Denominator: Eurostat
Data availability	NUTS 2: two-year averages for 2015 - 2022

Employment in knowledge-intensive activities (percentage of total employment)	
Numerator	Number of employed persons in knowledge-intensive activities in business industries. Knowledge-intensive activities are defined, based on EU Labour Force Survey data, as all NACE Rev.2 industries at 2-digit level where at least 33% of employment has a higher education degree (ISCED 5-8)
Denominator	Total employment
Rationale	Knowledge-intensive activities provide services directly to consumers, such as telecommunications, and provide inputs to the innovative activities of other firms in all sectors of the economy
Included in EIS	Yes, but for RIS alternative data used for Employment in Medium-high and high-tech manufacturing and Employment in Knowledge-intensive services
Data source	Eurostat
Data availability	NUTS 2: 2014 – 2021

Employment in innovative SMEs	
Numerator	Number of employed persons in innovative SMEs ('SMEs that have either introduced an innovation or have any kind of innovation activity including SMEs with abandoned/suspended or on-going innovation activities)
Denominator	Total employment in innovative SMEs
Rationale	Innovation in enterprises has a profound impact on the employability of workers, but its effect in product- and process-innovation oriented firms varies across countries. Firm innovation proves to be specifically important during a time of economic recession. Although high-skilled employees are less affected by a recession than low-skilled employees, a notable positive effect is observed for low-skilled employees in innovative firms as well.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2018 and CIS 2020 Own estimates for 2014 and 2016 combining country-level data and region to country scores for 2018

Sales of new-to-market and new-to-firm innovations in SMEs as percentage of turnover	
Numerator	Sum of total turnover of new or significantly improved products for SMEs
Denominator	Total turnover for SMEs
Rationale	This indicator measures the turnover of new or significantly improved products and includes both products which are only new to the firm and products which are also new to the market. The indicator thus captures both the creation of state-of-the-art technologies (new to market products) and the diffusion of these technologies (new to firm products)
Included in EIS	No, proxy for EIS indicator including all enterprises
Data source	Community Innovation Survey: Eurostat and National Statistical Offices
Data availability	NUTS 1 and 2 for different countries for CIS 2014, CIS 2016, CIS 2018, CIS 2020

Air emissions by fine particulate matter (PM2.5) in the manufacturing sector	
Numerator	Air emissions by fine particulate matter (PM2.5) in the Manufacturing sector in Tonnes
Denominator	Value added in the Manufacturing sector - Chain linked volumes (2010), million euro
Rationale	Air pollution may be anthropogenic (human-induced) or of natural origin. Air pollution has the potential to harm both human health and the environment: particulate matter (PM), nitrogen dioxide and ground-level ozone are known to pose particular health risks. Long-term and peak exposures to these pollutants may be associated, among other impacts, with cardiovascular and respiratory diseases or an increased incidence of cancer. This indicator captures average concentration levels of fine particulate matter (PM2.5 — particles with a diameter of 2.5 micrometres or less) to which the population is exposed. The EU set an annual limit of 25 µg/m ³ for fine particulate matter in Directive 2008/50/EC ⁷ on ambient air quality and cleaner air, while the World Health Organisation (WHO) set a more stringent, but non-binding guideline value, whereby annual mean concentrations should not exceed 10 µg/m ³ in order to protect human health. PM2.5 is considered by the WHO as the pollutant with the highest impact on human health.
Included in EIS	Yes, but for RIS alternative data used for Exposure to fine particulates (PM 2.5)
Data source	European Environmental Agency
Data availability	NUTS 2: 2013 - 2020